CONTHERM *Scientific Limited*

TECHNICAL MEMORANDUM **PRODUCT :ZP17 TO ZP17B** **No : 0100**

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FROM : Contherm Scientific Ltd **DATE :** 29/08/2007

TO : ALL AGENTS

SUBJECT: ZP17 TO ZP17B WATERBATH UPGRADE

The original ZP17 PCB is no longer manufactured. If a ZP17 PCB requires replacement in an ANALOG WATERBATH, a ZP17B PCB can directly replace it.

The basic layout of the ZP17B is very similar to the ZP17, the terminal header has a red jumper wire to supply power to the fan motor. The mounting holes are the same and the position of the LED indicators is retained. It is recommended that the earth wire from the fan motor is connected directly to the metal chassis of the controller rather than to the motor earth position on the PCB.

The main differences are:

- Larger and more efficient heat sink resulting in lower triac temperature.

When replacing the PCB ensure ALL POWER to the unit is OFF, the replacement must ONLY be carried out by a qualified electrical service engineer.

After removing the ZP17 PCB, stick the small lexan overlay to the escutcheon directly beneath where the mains power terminals of the ZP17B PCB would sit, this provides additional electrical isolation.
Fit spacer 12 between the ZP17B PCB and the escutcheon by locating it over the mounting screw closest to where the thermocouple sensor is connected to the PCB (At the heatsink end of the board). The special rectangular aluminium spacer screwed to the ZP17B next to the mains phase connection sits directly onto the escutcheon when the PCB is fitted to ensure any excess heat is conducted away from the triac heater driver. The opposite end of the PCB must have INSULATING spacers to ensure that it does NOT contact the aluminium escutcheon therefore fit 2x nylon spacers over each mounting screw between the ZP17B PCB and the escutcheon.

Firmly secure the ZP17B PCB in place with washer 04 and nut on black heatsink and nylon spacer and nut on the opposite end of the board.

Ensure the new socket is correctly wired, it is best to carry out the wiring with the header & socket mated so that the connections can be read from the PCB markings. Connect the MOTOR earth DIRECT to the controller metal chassis rather than to the PCB earth. Ensure that the **H**igh/**L**ow temperature range setting on the PCB is set to **L**ow. Check the polarity of the thermocouple probe is correct when connecting to the PCB (red sleeve is +ve).

BEFORE applying any power to the unit check the **EARTHING** of the controller housing and check the **INSULATION** with a **500**V tester.

PARTS REQUIRED:

- ZP17B PCB (This board has a **H**igh/**L**ow jumper – comes set to **L**ow as default).
- ZP17B plug in terminal socket. (normally comes with the new PCB).
- Spacers:
  1xSpacer 12 (Metal – fitted to heatsink end of PCB on thermocouple side of board), 2x Washer 04 (4mm), 6x Nylon spacers. NB: The PCB should come with a special spacer already attached to the heatsink end nearest the mains input terminals)
- 4x Nut 06 (4mm)
- Lexan overlay insulator. (Stick to aluminum escutcheon below mains terminals).

Test and Calibrate the new controller to customers requirements.